

CLAIMS:

1. A data converter comprising a sigma delta modulator intended to operate at a specific sample frequency (f_s) said sigma delta modulator comprising in a feedback loop a comparator (G), a discrete-time low-pass filter (FD) and a quantizer (Q) in that order, in which the comparator (G) is arranged to compare the output of the quantizer with the input signal (U) to be converted, characterized in that, for decreasing the idle oscillation frequency of the sigma delta modulator, the discrete-time low-pass filter is arranged to have a 180° phase delay with positive group delay at a frequency that is at least four times lower than the sample frequency (f_s).
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- 10 2. A data converter as claimed in claim 1 characterized in that the transfer function of the discrete-time low-pass filter (FD) comprises, in its complex z-plane, a plurality of poles at or close to the point (1;0) of the unit circle of said plane and an additional pole on the positive real axis of said plane at a value between 0.20 and 0.92 for decreasing the idle oscillation frequency of the sigma delta modulator.
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- 15 3. A data converter as claimed in claim 2 characterized in that the transfer function of the discrete-time low-pass filter (FD) has a number of poles that exceeds the number of zeros of said discrete-time low-pass filter by at least 2.
- 20 4. A data converter as claimed in claim 3 characterized in that the discrete-time low-pass filter (FD) comprises a cascade of integrators (I_1 to I_6), summing means (AD) to sum the output of said integrators through coefficient multipliers (C_1 to C_6) to constitute the output of the discrete-time low-pass filter and a single order low-pass filter section (L) positioned in series with the first of the integrators of said cascade for producing said
25 additional pole on the real axis of the complex z-plane.